



**OREGON
DEPARTMENT OF
AGRICULTURE**



**Oregon State University
Extension Service**

Oregon Little Cherry Disease Survey

In 2021 and 2022, the Oregon Department of Agriculture (ODA) Plant Health program and the Oregon State University Plant Clinic collaborated on a USDA Plant Protection Act (PPA) 7721-funded project to survey for the causal agents of Little Cherry Disease (LCD) in *Prunus* spp. plants in Oregon. For the most up-to-date information, visit www.oda.direct/OfficialSurveys.

Background

LCD is a disease complex and can be caused by three pathogens – *Little cherry virus 1* (LChV1), *Little cherry virus 2* (LChV2) and/or Western X (WX) phytoplasma (*Candidatus Phytoplasma pruni*). Singly or in combination, infection with these pathogens results in cherries of small size, poor color, and bitter taste. WX can also infect plums, peaches, almonds, and ornamental cherries.

LCD has become a major concern for cherry producers as well as for nurseries that produce *Prunus* spp. nursery stock. Oregon ranks 3rd in both US cherry and nursery and greenhouse sales.

The cherry production areas of Oregon are mainly in the mid-Columbia and Columbia Plateau regions of the state, separated from the Willamette Valley (WV) by the Cascade Range. There is also some cherry production in Northeast Oregon (Figure 1). Certified nurseries that produce *Prunus* spp. nursery stock – including sweet, sour, and ornamental cherries, plum, almond, and peaches – are in the WV.

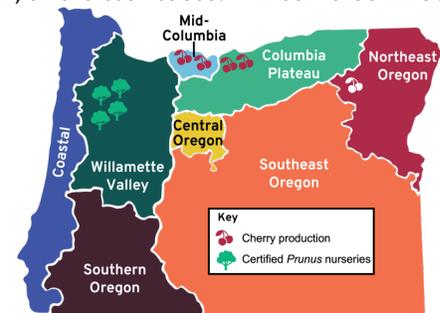


Figure 1. Cherry and *Prunus* nursery stock production areas in Oregon.

All of these types of *Prunus* spp. can be hosts of LCD. There is concern among cherry growers that if certified nursery stocks were infected with LCD, there would be insufficient planting material to replace LCD-infected orchards that are being removed. Additionally, nursery owners are concerned that ornamental *Prunus*, production orchards in the WV, or homeowners could purchase infected planting material from other states and that could infect Oregon's certified nurseries. Ornamental *Prunus* spp. are a concern because they are often symptomless.

These concerns prompted the Plant Health program and Plant Clinic to apply for PPA 7721 funding for a survey for the causal agents of LCD to support Oregon's cherry growers and nursery stock producers.

Little Cherry Disease Survey Goals

- Test registered *Prunus* spp. mother plants in the Oregon certification program for LChV1, LChV2, and WX.
- Survey and test *Prunus* spp. host plants in environmental/landscape sites near nurseries the certification program.
- Survey and test cherry and other *Prunus* spp. production orchards in Oregon.
- Implement best management practices to manage and, when possible, eliminate LCD-infected trees.

Little Cherry Disease Pathogens

- *Little cherry virus 1* (LChV1)
- *Little cherry virus 2* (LChV2)
- *Candidatus Phytoplasma pruni* - Western X (WX) phytoplasma

Little Cherry Disease Symptoms

- Small fruit, reduced fruit quality
- Bland or bitter tasting fruit

Little Cherry Survey Project Accomplishments

Survey Summary

- 17 nurseries producing certified *Prunus* spp. nursery stock were surveyed for LCD pathogens.
- 3,507 registered mother plants in the nursery certification program were tested for LChV1, LChV2 and WX.
- Visually surveyed *Prunus* spp. landscape plants in 11 Oregon counties; no symptoms were observed.
- Sampled and tested 394 *Prunus* spp. landscape plants for the causal agents of LCD.
- Symptomatic samples from one Umatilla County orchard tested positive for WX.

Survey Results

This survey is the first to identify any of the casual agents of LCD in Oregon's certified nurseries – previously LChV1 and LChV2 had been found in orchards in the WV. Seventeen samples tested positive for one of the three causal agents of LCD (Table 1). Four were rootstock and 13 were ornamental weeping cherries. No individual plant tested positive for more than one pathogen. All positive-testing material was decertified, removed from the blocks and destroyed.

LCD host plants in the landscape of 11 counties (Benton, Clackamas, Columbia, Hood River, Lane, Linn, Marion, Multnomah, Polk, Washington, and Yamhill) were visually surveyed in 2021. No symptoms were observed. Samples were collected from all 11 counties and tested for LCD agents. No samples tested positive for WX (0/394). Incidence of LChV2 was the most commonly identified pathogen; 50/337 samples tested positive for LChV2 from 7 counties. LChV1 was found in samples collected from 4 counties, in 14/336 samples tested. This data is consistent with previous knowledge about the distribution of LCD in Oregon.

In 2022, stakeholders were invited to submit symptomatic or suspicious *Prunus* samples for testing for the three causal agents of LCD, free-of-charge. Samples from one orchard in Umatilla County were submitted for testing – all nine samples were positive for WX.

Table 1. Survey results for the causal agents of Little Cherry Disease (Western X phytoplasma (WX), Little cherry virus 1 (LChV1) and Little cherry virus 2 (LChV2)) in registered *Prunus* spp. nursery stocks in Oregon.

County	Certified Nurseries	Total Samples	WX Positive Samples	LChV1 Positive Samples	LChV2 Positive Samples
Clackamas	3	220	0	0	0
Multnomah	3	488	1	8	0
Washington	6	575	0	2	2
Yamhill	5	2214	2	1	1
Totals:	17	3507	3	11	3

This project was funded by USDA PPA 7721. Testing was provided for free for nurseries, orchardists, and other stakeholders participating in the survey.

What more information? For more information about the survey and results, contact the Plant Health program at 503.986.4620 or PlantHealth@oda.oregon.gov.

ODA Plant Health Program

The main goals of the Plant Health program are to protect Oregon's agricultural industries, environment, and quality of life from damaging plant pathogens and parasites and to enhance the marketability of Oregon's agricultural and horticultural products by providing official field inspections and laboratory testing for phytosanitary certification.

For more information about official survey work by the Plant Health program to safeguard and protect Oregon from introduction of harmful plant pathogens, visit www.oda.direct/OfficialSurveys.

OSU Plant Clinic

The Oregon State University Plant Clinic is a diagnostic facility that offers fee-based plant disease problem solving and specialized identification services.

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